

**LISTING OF THE CLAIMS**

The following is a complete listing of all the claims in the application, with an indication of the status of each:

- 1 1. (Currently amended) A processor-implemented method for statistical regression using  
2 ensembles of classification solutions comprising the steps of:  
3 running employing a processor to run k-means clustering for k clusters on the set  
4 of values  $\{y_i, i = 1 \dots n\}$ ;  
5 recording employing a processor to record a mean value  $m_j$  of a cluster  $c_j$  for  
6  $j = 1 \dots k$ ;  
7 transforming employing a processor to transform regression data into  
8 classification data with a class label for an i-th case being a cluster number of  $y_i$ ;  
9 applying employing a processor to apply ensemble classifier and obtain by a  
10 machine learning method a set of rules  $R$ ; and  
11 making employing a processor to make a prediction for new case  $u$ , using a  
12 margin of  $M$ , where  $0 \leq M \leq 1$ .
- 1 2. (Currently amended) The processor-implemented method recited in claim 1, wherein  
2 the step of making a prediction comprises the steps of:  
3 applying employing a processor to apply all the rules  $R$  on the new case  $u$ ;  
4 for each class  $i$ , counting employing a processor to count a number of satisfied  
5 rules (votes)  $v_i$ ;  
6 classifying employing a processor to classify  $t$  has the most votes,  $v_i$ ;

7 considering employing a processor to consider a set of classes  $P = \{p\}$  such that

8  $v_p \geq M \cdot v_i$ ; and

9 generating employing a processor to generate a predicted output for case  $u$ ,

$$10 \quad y_u' = \frac{\sum_{j \in p} m_j v_j}{\sum_{j \in p} v_j}.$$

1 3. (Currently amended) A processor-implemented method of pattern recognition  
2 comprising the steps of:

3 applying employing a processor to apply clustering processes to determine a  
4 number of classes;

5 employing a processor to apply a machine learning method to find an ensemble of  
6 classification rules;

7 applying employing a processor to apply ensemble learning classification  
8 processes to predict most likely classes for a new example; and

9 then averaging employing a processor to average regression values of most likely  
10 classes to predict a value of a new example.

1 4. (Currently amended) A processor-implemented method of pattern recognition for a set  
2 of values, said method comprising the steps of:

3 determining employing a processor to determine a number of classes to be  
4 generated based on a trend of error of a class mean/median for the set of values;

5 classifying employing a processor to classify the values using ensemble learning  
6 classification and the determined number of classes;

7 generating employing a processor to generate by a machine learning method a set  
8 of classification rules; and

9 averaging employing a processor to average regression values of most likely

10 classes to predict a value of a new example based on the set of rules.

1 5. (Currently amended) A processor-implemented method of pattern recognition  
2 according to claim 4, wherein said step of determining a number of classes comprises the  
3 steps of:

4 determining employing a processor to determine the class mean/median for a  
5 variable number of classes;

6 determining employing a processor to determine a mean absolute deviation  
7 (MAD) based on the class means/medians; and

8 comparing employing a processor to compare the MAD to a predetermined  
9 percentage of MAD.

1 6. (Currently amended) A processor-implemented method of pattern recognition  
2 according to claim 4, wherein the step of averaging regression values includes using  
3 employing a processor to use margins for predicting the value of the new example.

1 7. (Currently amended) A processor-implemented method of pattern recognition  
2 according to claim 4, wherein the step of averaging regression values comprises the steps  
3 of:

4 applying employing a processor to apply the set of classification rules to the new  
5 example;

6 for each class  $i$ , counting employing a processor to count a number of satisfied  
7 rules (votes)  $v_i$ ;

8 classifying employing a processor to classify  $t$  has the most votes,  $v_i$ ;

9 considering employing a processor to consider a set of classes  $P = \{p\}$  such that  
10  $v_p \geq M \cdot v_i$ ; and

11 generating employing a processor to generate a predicted output for case  $u$ ,  $y_u' =$

12  $\frac{\sum_{j \in p} m_j v_j}{\sum_{j \in p} v_j}.$